# CLAIMS

What is claimed is:

1    1.    A processor-based method comprising:

2        receiving a data stream comprising a plurality of temporally ordered data

3            points;

4        generating a plurality of sequences from a first portion of the data stream; and

5        training a detector by determining a value for a sensitivity parameter using the

6            plurality of sequences.


    2.    The method, as set forth in claim 1, comprising running the detector on a

second portion of the data stream.


1    3.    The method, as set forth in claim 2, wherein running the detector comprises:

2        generating a score corresponding to the second portion of the data stream;

3        comparing the score to the determined value for the sensitivity parameter; and

4        signaling detection.


1    4.    The method, as set forth in claim 1, wherein training the detector by

2    determining the value for the sensitivity parameter comprises selecting the value for the

3    sensitivity parameter based on a target level for an estimated performance characteristic of

4    the detector.

1    5.    The method, as set forth in claim 1, wherein training the detector by

2    determining the value for the sensitivity parameter comprises:

3            generating a score for each of the plurality of sequences; and

4            selecting the value for the sensitivity parameter based on the scores.


1    6.    The method, as set forth in claim 1, wherein generating the plurality of

2    sequences comprises:

3            inferring a statistical distribution of a known type to characterize the first

4                portion of the data stream; and

5            generating the plurality of sequences from the statistical distribution.


1    7.    The method, as set forth in claim 6, wherein the statistical distribution is a

2    discrete distribution containing data points from the first portion of the data stream, and

3    wherein generating the plurality of sequences from the statistical distribution comprises

4    selecting data points from the discrete distribution.


1    8.    The method, as set forth in claim 6, wherein inferring a known type of

2    distribution comprises determining a set of parameters corresponding to the known type of

3    statistical distribution.


1    9.    The method, as set forth in claim 1, wherein generating the plurality of

2    sequences comprises:

3            selecting a change based on a distribution of changes;  and

4            generating a changed sequence based on the selected change.

1       10.    The method, as set forth in claim 1, wherein determining the value of the

2    sensitivity parameter comprises determining a plurality of values for the sensitivity parameter

3    using the plurality of sequences.

1       11.    The method, as set forth in claim 10, wherein determining one of the plurality

2    of values for the sensitivity parameter comprises calculating a transformation of a second of

3    the plurality of values for the sensitivity parameter.

1       12.    The method, as set forth in claim 1,

2           wherein receiving a data stream comprises receiving a plurality of data

3               streams;

4           wherein generating the sequences comprises generating a respective plurality

5               of sequences from a respective first portion of each of the plurality of

6               data streams; and

7           wherein determining the sensitivity parameter comprises determining a

8               respective sensitivity parameter for each of the plurality of sequences.

1       13.    The method, as set forth in claim 1, wherein determining the value for the

2    sensitivity parameter comprises determining the value for the sensitivity parameter based at

3    least partially on cost parameters.

1       14.    The method, as set forth in claim 12, comprising raising an alarm when a

2    respective detector signals detection when parameterized by the respective sensitivity

3    parameter and run on a respective second portion of a sufficient set of data streams.

1     15.    A processor-based method comprising:

2          training a detector using a plurality of sequences generated from a first portion

3                of a data stream, wherein the detector is configured to detect an

4                interesting event in the data stream;  and

5          testing a second portion of the data stream using the trained detector.


1     16.    The method, as set forth in claim 15, comprising transforming the data stream

2  before training the detector.


1     17.    The method, as set forth in claim 15, comprising:

2          generating a plurality of sequences from a third portion of the data stream;

3                and

4          retraining the detector using the plurality of sequences generated from the

5                third portion of the data stream.


1     18.    The method, as set forth in claim 15, wherein training the detector comprises

2  determining one or more sensitivity parameters from the plurality of sequences.


1     19.    The method, as set forth in claim 18, wherein testing the second portion of the

2  data stream comprises:

3          generating a score associated with the second portion of the data stream;  and

4          comparing the score with the one or more sensitivity parameters.

1     20.     The method, as set forth in claim 15, comprising raising an alarm only if an

2    interesting event is detected in the data stream a predetermined number of times within a

3    predetermined amount of time.

1     21.     The method, as set forth in claim 15, comprising raising an alarm if the

2    detector detects an interesting event in the data stream.

1     22.     A system comprising:

2         a trainer configured to generate a plurality of sequences from a first portion of

3               a data stream and further configured to determine one or more

4               sensitivity parameters based on the sequences; and

5         a detector configured to detect an interesting event in the data stream using the

6               one or more sensitivity parameters.

1     23.     The system, as set forth in claim 22, comprising an alarm coupled to the

2    detector and configured to engage when an interesting event in the data stream is detected.

1     24.     The system, as set forth in claim 22, comprising an input device coupled to the

2    trainer, wherein the device is configured to allow a user to set cost parameters for use in

3    determining the one or more sensitivity parameters.

1     25.     A computer-readable medium storing computer instructions for:

2         generating a plurality of sequences from a first portion of a data stream;

3         determining a sensitivity parameter using the plurality of sequences; and

4     training a detector to detect an interesting event in the data stream using the

5       sensitivity parameter.


1  26.  The computer-readable medium, as set forth in claim 25, storing computer

2 instructions for:

3     generating a score corresponding to a second portion of the data stream;  and

4     signaling detection of an interesting event in the data stream if the score

5       crosses the sensitivity parameter.


1  27.  A system comprising:

2     means for generating a plurality of sequences from a first portion of a data

3       stream;

4     means for determining a sensitivity parameter based on the plurality of

5       sequences; and

6     means for detecting an interesting event in a second portion of the data stream

7       using the sensitivity parameter.


1  28.  The system, as set forth in claim 27, wherein means for determining comprises

2 means for generating a plurality of interesting sequences from the data stream, wherein the

3 interesting sequences have a different statistical distribution than a statistical distribution of

4 the first portion of the data steam.


1  29.  The system, as set forth in claim 27, wherein means for detecting comprises

2 means for detecting an interesting event in a parameter of the plurality of distributions.

1        30.     The system, as set forth in claim 27, comprising means for injecting a change

2    into the first portion of the data steam.